

Getting Started

Business Desktops

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Use this guide after you have completed the steps detailed in the *Quick Setup* guide. It will help you set up factory-provided software. It also includes basic troubleshooting information should you have problems during the initial startup process.

Enhanced for accessibility

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Getting Started
Business Desktops
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Getting Started

Installing & Customizing the Software



CAUTION: Do not add optional hardware or third-party devices to the computer until the operating system is successfully installed. Doing so may cause errors and prevent the operating system from installing properly.

Installing the Operating System

The first time you turn on the computer, the operating system is installed automatically. This process takes about 5 to 10 minutes, depending on which operating system is being installed. Carefully read and follow the instructions on the screen to complete the installation.



CAUTION: Once the automatic installation has begun, DO NOT TURN OFF THE COMPUTER UNTIL THE PROCESS IS COMPLETE. Turning off the computer during the installation process may damage the software that runs the computer or prevent its proper installation.



If the computer shipped with more than one operating system language on the hard drive, the installation process could take up to 60 minutes.

If your computer was not shipped with a Microsoft operating system, some portions of this documentation do not apply. For complete operating system installation and configuration

instructions, refer to the operating system documentation that was provided with the computer. Additional information is available in online help after you install the operating system.

Microsoft Security Updates

This system has been delivered to you from the HP factory with Microsoft Critical updates loaded on your system and ready for installation that were available at the time of development. HP and Microsoft strongly recommend that you install the Microsoft Security Updates loaded on your system, and then connect to the Microsoft Windows update Web site to acquire any additional critical Microsoft Security updates recommended for your operating system.

Installing Microsoft Critical Updates that are Loaded on the System

Please install the critical updates that were loaded on the system before connecting to the Internet.

1. Click **Start > All Programs > Software Setup**. The **Welcome** screen appears.
2. On the Welcome screen, click **Next**.
 a. If **Microsoft Windows XP Service Pack Hotfixes** appears as a **Software Setup** application choice, ensure that it is checked.
 b. If **Microsoft Windows XP Service Pack Hotfixes** does *not* appear as a **Software Setup** application choice, then the updates were preinstalled at the factory. Click **Cancel** and proceed to step 5.
3. Click **Next** to proceed with the installation.
 A status bar indicating the progress of the installation is displayed.

4. From the Setup Complete window, click **Finish** to reboot the computer.
5. Proceed with the steps in the **Downloading Updates from the Microsoft Windows Update Web site** section to ensure you have all of the latest updates for your system.

Downloading Updates from the Microsoft Windows Update Web Site

1. To set up your Internet connection, click **Start > Internet Explorer** and follow the instructions on the screen.
2. Once an Internet connection has been established, click the **Start** button.
3. Select the **All Programs** menu.

 Click on the **Windows Update** link at the top of the menu.

 You will be directed to the **Microsoft Windows Update Web site**.

 You may see one or more pop-up windows that will ask you to install a program from www.microsoft.com.
4. Click **Yes** to install the programs from www.microsoft.com.
5. Click the **Scan for Updates** link when it appears.

 After scanning, click the **Critical Updates and Service Packs** link when it appears under the heading **Pick updates to install**.

 A list of updates will appear with all updates selected by default.

 It is recommended that you install all of the updates listed in this section.
6. Click on the **Review and Install Updates** link.

7. Click the **Install Now** button. This will start downloading the critical updates and automatically install them.
8. After the updates have been installed, Windows XP will prompt you to reboot the machine. Be sure to save any files or documents that you may have open before rebooting. Then select **Yes** to reboot the machine.

Accessibility

HP is committed to designing products, services, and programs with improved usability and accessibility for all customers. HP products with Microsoft Windows XP preinstalled, or that are XP Ready, are designed for accessibility. These products are tested with industry-leading Assistive Technology products to ensure equal access—anytime, anywhere . . . to anyone.

Installing or Upgrading Device Drivers

When installing optional hardware devices after the operating system installation is complete, you must also install the drivers for each of the devices.

If prompted for the I386 directory, replace the path specification with **C:\i386**, or use the **Browse** button in the dialog box to locate the i386 folder. This action points the operating system to the appropriate drivers.

Obtain the latest support software, including support software for the operating system from www.hp.com. Click **support & drivers**, select **Download drivers and software**, enter the model number of the computer, and press **Enter**.

You can also obtain the latest support software on CDs. The following Web site provides information on how to purchase a support software CD subscription:

http://h18000.www1.hp.com/support/files/desktops/us/purchase.html



If the computer has an optical CDRW drive, install the appropriate application to be able to write to the drive. To install the application, double-click the **Setup Software** icon on the desktop or the application launcher and select the **Easy CD Creator and Direct CD** option when prompted.

Customizing the Monitor Display

If you wish, you can select or change the monitor model, refresh rates, screen resolution, color settings, font sizes, and power management settings. To do so, right-click on the Windows Desktop, then click Properties to change display settings. For more information, refer to the online documentation provided with the graphics controller utility or the documentation that came with your monitor.

Protecting the Software

To protect the software from loss or damage, keep a backup copy of all system software, applications, and related files stored on the hard drive. Refer to the operating system or backup utility documentation for instructions on making backup copies of your data files.

Transferring Files and Settings

Use the Microsoft Windows XP Files and Settings Transfer Wizard to move files and settings from the old computer to the new one. Click **Start** > **All Programs > Accessories > System Tools** > **Files and Settings Transfer Wizard**.

Restoring the Software

Restore the original operating system and factory-installed software by using the Restore Plus! CD and any other CDs that came with the computer. Carefully read and follow the instructions provided for the restore solution that came with the computer.

For questions about or problems with this CD, please contact customer support.

Turning Off the Computer

To properly turn off the computer, first shut down the operating system software. In Microsoft Windows XP Professional, click **Start > Shut Down**. In Microsoft Windows XP Home, click **Start > Turn Off Computer**. The computer automatically shuts down.

Depending on the operating system, pressing the power button causes the computer to enter a low-power or "standby" state instead of automatically turning the power off. This allows you to conserve energy without closing software applications; later, you can start using the computer immediately without having to restart the operating system and without losing any data.



CAUTION: Manually forcing the computer off can cause loss of data.

To turn off power to the computer, press and hold the power button for four seconds. However, manually turning off the power bypasses the standby state and can result in loss of data.

To reconfigure the power button to work in On/Off mode, run Computer Setup. Refer to the Computer Setup (F10) Utility Guide on the Documentation CD for more information about using the Computer Setup utility.

Finding More Information

Refer to the *Documentation CD* for additional product information in easy to access PDF format. The CD contains the following publications:

- *Quick Setup* (available in print and Adobe Acrobat PDF on the CD) Helps you connect the computer and peripheral devices.
- *Getting Started* (available in print and PDF on the CD) Helps you set up factory-provided software; also includes basic troubleshooting information should you encounter any problems during initial startup.
- *Hardware Reference Guide* (PDF on the CD) Provides an overview of the product hardware, as well as instructions for upgrading this series of computers, and includes information on RTC batteries, memory, and power supply.
- *Computer Setup (F10) Utility Guide* (PDF on the CD) Provides instructions on using this tool to reconfigure or modify default settings for maintenance purposes or when installing new hardware devices.
- *Desktop Management Guide* (PDF on the CD) Provides definitions and "how to" instructions for security and Intelligent Manageability features that are preinstalled on select models.
- *Network & Internet Communications Guide* (PDF on the CD) Provides basic networking information and instructions for installing device drivers and using network interface controller (NIC) features preinstalled on select desktop models; also provides information about Internet Service Providers and using the Internet.
- *Troubleshooting Guide* (PDF on the CD)
 A comprehensive guide that provides helpful hints for troubleshooting this computer and scenarios for resolving

possible hardware or software problems; includes information about diagnostic codes, as well as information on running Computer Diagnostics for Windows.

- *Safety & Regulatory Information Guide* (PDF on the CD) Provides safety and regulatory information that ensures compliance with U.S. Canadian, and various international regulations.



If you do not have a CD-ROM drive, you may download the product documentation from the Web at http://www.hp.com. Click **support & drivers**, select **See support and troubleshooting information**, enter the model number of the computer, and press **Enter**.

Locating Regulatory Information

The computer is a Class B digital device, pursuant to Part 15 of the FCC Rules. Refer to the *Safety & Regulatory Information* guide on the *Documentation CD* for Class B information.

Using the Documentation CD

1. Insert the compact disc into the CD-ROM drive.

 There may be a slight delay while the software on the CD checks the Windows Regional Settings. If a recent version of Adobe Acrobat or Acrobat Reader is not found on the computer, it will be installed automatically from the CD.

2. Read and follow the prompts to complete the installation.

 The menu and books are displayed in the language chosen during initial system setup or as specified later in the Windows Regional Settings. If the Regional Settings do not match one of the languages supported on the CD, the menu and books are displayed in English.

3. Click the title of the book you want to read.

If there is no CD-ROM drive activity for two minutes or more, it may be that Autorun is not enabled on the computer.

To run the *Documentation CD* if it does not run automatically:

1. Click **Start > Run**.
2. Type:

 X:\DocLib.exe

 (where **X** is the drive letter designator for the CD-ROM drive)

3. Click **OK**.

If the computer is running a Linux operating system, the Documentation CD will not autorun.

To find additional hardware documentation for the computer, browse to the HelpFiles folder on the CD. To view the documents on the CD, download and install Adobe Acrobat Reader for Linux from www.adobe.com.

Before You Call for Technical Support

If you are having problems with the computer, try the appropriate solutions below to try to isolate the exact problem before calling for technical support.

- Run the Diagnostics for Windows utility. Refer to the *Troubleshooting Guide* on the *Documentation CD* for more information.
- Run the Drive Protection System (DPS) Self-Test in Computer Setup. Refer to the *Computer Setup (F10) Utility Guide* on the *Documentation CD* for more information.

- Check the power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to "Interpreting Diagnostic Lights and Audible Codes" on page 23 in this guide for details.
- If the screen is blank, plug the monitor into a different video port on the computer if one is available. Or, change out the monitor with a monitor that you know is working properly.
- If you are working on a network, plug another computer with a different cable into the network connection. There may be a problem with the network plug or cable.
- If you recently added new hardware, remove the hardware and see if the computer functions properly.
- If you recently installed new software, uninstall the software and see if the computer functions properly.
- Boot the computer to the Safe Mode to see if it will boot without all of the drivers loaded. When booting the operating system, use "Last Known Configuration."
- Refer to the comprehensive online technical support at www.hp.com/support.
- Refer to the following "Helpful Hints" section on page 12 in this guide for more general suggestions.
- Refer to the comprehensive *Troubleshooting Guide* on the *Documentation CD* for more detailed information.
- Run the R*estore Plus!* CD.

CAUTION: Running the Restore CD will erase all data on the hard drive.

To assist you in resolving problems online, HP Instant Support Professional Edition provides you with self-solve diagnostics. If you need to contact HP support, use HP Instant Support Profession Edition's online chat feature. Access HP Instant Support Professional Edition at: www.hp.com/go/ispe.

Access the Business Support Center (BSC) at www.hp.com/go/bizsupport for the latest online support information, software and drivers, proactive notification, and worldwide community of peers and HP experts.

If it becomes necessary to call for technical assistance (1-800-652-6672), be prepared to do the following to ensure that your service call is handled properly:

- Be in front of your computer when you call.
- Write down the computer serial number and product ID number, and the monitor serial number before calling.
- Spend time troubleshooting the problem with the service technician.
- Remove any hardware that was recently added to your system.
- Remove any software that was recently installed.
- Run the *Restore Plus!* CD.



CAUTION: Running the Restore CD will erase all data on the hard drive.



For sales information and warranty upgrades (HP Care Pack), call 1-800-282-6672.

Helpful Hints

If you encounter problems with the computer, monitor, or software, see the following list of general suggestions before taking further action:

- Check that the computer and monitor are plugged into a working electrical outlet.
- Check to see that the voltage select switch (some models) is set to the appropriate voltage for your region (115V or 230V).
- Check to see that the computer is turned on and the green power light is on.
- Check to see that the monitor is turned on and the green monitor light is on.
- Check the power LED on the front of the computer to see if it is flashing red. The flashing lights are error codes that will help you diagnose the problem. Refer to "Interpreting Diagnostic Lights and Audible Codes" on page 23 in this guide for details.
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- Press and hold any key. If the system beeps, then the keyboard should be operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Wake the computer by pressing any key on the keyboard or pressing the power button. If the system remains in suspend mode, shut down the computer by pressing and holding the power button for at least four seconds then press the power button again to restart the computer. If the system will not shut down, unplug the power cord, wait a few seconds, then

plug it in again. The computer will restart if automatic start on power loss is set in Computer Setup. If it does not restart, press the power button to start the computer.

- Reconfigure your computer after installing a non–plug and play expansion board or other option. See "Solving Hardware Installation Problems" on page 20 for instructions.
- Be sure that all the needed device drivers have been installed. For example, if you are using a printer, you need a driver for that model printer.
- Remove all bootable media (diskette, CD, or USB device) from the system before turning it on.
- If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on the system.
- If the system has multiple video sources (embedded, PCI, or PCI-Express adapters) installed (embedded video on select models only) and a single monitor, the monitor must be plugged into the monitor connector on the source selected as the primary VGA adapter. During boot, the other monitor connectors are disabled and if the monitor is connected into these ports, the monitor will not function. You can select which source will be the default VGA source in Computer Setup.



CAUTION: When the computer is plugged into an AC power source, there is always voltage applied to the system board. You must disconnect the power cord from the power source before opening the computer to prevent system board or component damage.

Basic Troubleshooting

This section concentrates on problems that you might encounter during the initial set up process. A comprehensive *Troubleshooting Guide* is available on the *Documentation CD* and under the reference library at http://www.hp.com. Click **support & drivers,** select **See support and troubleshooting information**, enter the model number of the computer, and press **Enter**.

Solving General Problems

You may be able to easily resolve the general problems described in this section. If a problem persists and you are unable to resolve it yourself or if you feel uncomfortable about performing the operation, contact an authorized dealer or reseller.

Solving General Problems

Problem	Cause	Solution
Computer appears locked up and will not turn off when the power button is pressed.	Software control of the power switch is not functional.	Press and hold the power button for at least four seconds until the computer turns off.
Computer will not respond to USB keyboard or mouse.	Computer is in **standby** mode.	Press the power button to resume from **standby** mode.
	System has locked up.	Restart computer.

CAUTION: When attempting to resume from **standby** mode, do not hold down the power button for more than four seconds. Otherwise, the computer will shut down and you will lose your data.

Solving General Problems *(Continued)*

Problem	Cause	Solution
Computer date and time display is incorrect.	RTC (real-time clock) battery may need to be replaced.  Connecting the computer to a live AC outlet prolongs the life of the RTC battery	First, reset the date and time under **Control Panel** (Computer Setup can also be used to update the RTC date and time). If the problem persists, replace the RTC battery. See the *Hardware Reference Guide* on the *Documentation CD* for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.
Cursor will not move using the arrow keys on the keypad.	The **Num Lock** key may be on.	Press the **Num Lock** key. The Num Lock light should not be on if you want to use the arrow keys. The **Num Lock** key can be disabled (or enabled) in Computer Setup.
Cannot remove computer cover or access panel.	Smart Cover Lock, featured on some computers, is locked.	Unlock the Smart Cover Lock using Computer Setup. The Smart Cover FailSafe Key, a device for manually disabling the Smart Cover Lock, is available from HP. You will need the FailSafe Key in case of forgotten password, power loss, or computer malfunction.

Solving General Problems *(Continued)*

Problem	Cause	Solution
Poor performance is experienced.	Processor is hot.	1. Make sure the airflow to the computer is not blocked. 2. Make sure the fans are connected and working properly (some fans only operate when needed). 3. Make sure the processor heatsink is installed properly.
	Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.
	Low on memory.	Add more memory.
	Hard drive fragmented.	Defragment hard drive.
	Program previously accessed did not release reserved memory back to the system.	Restart the computer.
	Virus resident on the hard drive.	Run virus protection program.
	Too many applications running.	1. Close unnecessary applications to free up memory. 2. Add more memory.
	Cause unknown.	Restart the computer.

Solving General Problems *(Continued)*

Problem	Cause	Solution
Computer powered off automatically and the Power LED flashes Red two times, once every second, followed by a two second pause, and the computer beeps two times.	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink is not properly attached to the processor.	1. Ensure that the computer air vents are not blocked and the processor cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace the processor fan. 4. Reseat processor heatsink and verify that the fan assembly is properly attached. 5. Contact an authorized reseller or service provider.

Solving General Problems *(Continued)*

Problem	Cause	Solution
System does not power on and the LEDs on the front of the computer are not flashing.	System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then: 1. Check that the voltage selector, located on the rear of the power supply on select models, is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Remove the expansion cards one at a time until the 5 V_aux light on the system board turns on. 3. Replace the system board.

Solving General Problems *(Continued)*

Problem	Cause	Solution
System does not power on and the LEDs on the front of the computer are not flashing. *(continued)*		OR Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then: 1. Check that the unit is plugged into a working AC outlet. 2. Open hood and check that the power button harness is properly connected to the system board. 3. Check that both power supply cables are properly connected to the system board. 4. Check to see if the 5 V_aux light on the system board is turned on. If it is turned on, then replace the power button harness. 5. If the 5 V_aux light on the system board is not turned on, then replace the power supply. 6. Replace the system board.

Solving Hardware Installation Problems

You may need to reconfigure the computer when you add or remove hardware, such as an additional drive or expansion card. If you install a plug and play device, Windows XP automatically recognize the device and configure the computer. If you install a non–plug and play device, you must reconfigure the computer after completing installation of the new hardware. In Windows XP, use the **Add Hardware Wizard** and follow the instructions that appear on the screen.

Solving Hardware Installation Problems

Problem	Cause	Solution
A new device is not recognized as part of the system.	Device is not seated or connected properly.	Ensure that the device is properly and securely connected and that pins in the connector are not bent down.
	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.
	When the system advised you of changes to the configuration, you did not accept them.	Reboot the computer and follow the instructions for accepting the changes.

Solving Hardware Installation Problems *(Continued)*

Problem	Cause	Solution
A new device is not recognized as part of the system. *(continued)*	A plug and play board may not automatically configure when added if the default configuration conflicts with other devices.	Use Windows XP Device Manager to deselect the automatic settings for the board and choose a basic configuration that does not cause a resource conflict. You can also use Computer Setup to reconfigure or disable devices to resolve the resource conflict.
Computer will not start.	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	1. Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation. 2. Observe the beeps and LED lights on the front of the computer. See "Interpreting Diagnostic Lights and Audible Codes" on page 23 to determine possible causes. 3. If you still cannot resolve the issue, contact Customer Support.
Power LED flashes Red five times, once every second, followed by a two second pause, and the computer beeps five times.	Memory is installed incorrectly or is bad.	1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate the faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.

Solving Hardware Installation Problems *(Continued)*

Problem	Cause	Solution
Power LED flashes Red six times, once every second, followed by a two second pause, and the computer beeps six times.	Video card is not seated properly or is bad, or system board is bad.	For systems with a graphics card: 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. For systems with integrated graphics, replace the system board.
Power LED flashes Red ten times, once every second, followed by a two second pause, and the computer beeps ten times.	Bad option card.	1. Check each option card by removing the cards one at time (if multiple cards), then power on the system to see if fault goes away. 2. Once bad card is identified, remove and replace bad option card. 3. Replace the system board.

Interpreting Diagnostic Lights and Audible Codes

This section covers the front panel LED codes as well as the audible codes that may occur before or during POST that do not necessarily have an error code or text message associated with them.



If you see flashing LEDs on a PS/2 keyboard, look for flashing LEDs on the front panel of the computer and refer to the following table to determine the front panel LED codes.



The audible code sequence will repeat 5 times and then stop. The front panel LED codes will continue until the error is resolved.



Recommended actions in the following table are listed in the order in which they should be performed.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Green Power LED On.	None	Computer on.	None
Green Power LED flashes every two seconds.	None	Computer in Suspend to RAM mode (select models only) or normal Suspend mode.	None required. Press any key or move the mouse to wake the computer.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes two times, once every second, followed by a two second pause.	2	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink/fan assembly is not properly attached to the processor.	1. Ensure that the computer air vents are not blocked and the processor cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace processor fan. 4. Reseat processor heatsink and verify that the fan assembly is properly attached. 5. Contact an authorized reseller or service provider.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes three times, once every second, followed by a two second pause.	3	Processor not installed (not an indicator of bad processor).	1. Check to see that the processor is present. 2. Reseat the processor.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes four times, once every second, followed by a two second pause.	4	Power failure (power supply is overloaded).	1. Open the hood and ensure the 4-wire power supply cable is seated into the connector on the system board. 2. Check if a device is causing the problem by removing ALL attached devices (such as hard, diskette, or optical drives, and expansion cards). Power on the system. If the system enters the POST, then power off and replace one device at a time and repeat this procedure until failure occurs. Replace the device that is causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly. 3. Replace the power supply. 4. Replace the system board.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes five times, once every second, followed by a two second pause.	5	Pre-video memory error	1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate the faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.
Red Power LED flashes six times, once every second, followed by a two second pause.	6	Pre-video graphics error.	For systems with a graphics card: 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board. For systems with integrated graphics, replace the system board.
Red Power LED flashes seven times, once every second, followed by a two second pause.	7	System board failure (ROM detected failure prior to video).	Replace the system board.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes eight times, once every second, followed by a two second pause.	8	Invalid ROM based on bad checksum.	1. Reflash the ROM using a ROMPaq diskette. See the "ROM Flash" section of the *Desktop Management Guide* on the *Documentation CD*. 2. Replace the system board.
Red Power LED flashes nine times, once every second, followed by a two second pause.	9	System powers on but is unable to boot.	1. Check that the voltage selector, located on the rear of the power supply (some models), is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Replace the system board. 3. Replace the processor.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes ten times, once every second, followed by a two second pause.	10	Bad option card.	1. Check each graphics card by removing the card (one at a time if multiple cards), then power on the system to see if fault goes away. 2. Once a bad card is identified, remove and replace the bad option card. 3. Replace the system board.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
System does not power on and LEDs are not flashing.	None	System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then: 1. Check that the voltage selector, located on the rear of the power supply, is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Remove the expansion cards one at a time until the 3.3 V_aux light on the system board turns on. 3. Replace the system board.

Diagnostic Front Panel LEDs and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
System does not power on and LEDs are not flashing. *(continued)*			OR Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then: 1. Check that the unit is plugged into a working AC outlet. 2. Open hood and check that the power button harness is properly connected to the system board. 3. Check that both power supply cables are properly connected to the system board. 4. Check to see if the 3.3 V_aux light on the system board is turned on. If it is turned on, then replace the power button harness. 5. If the 3.3 V_aux light on the system board is not turned on, then replace the power supply. 6. Replace the system board.

Ordering the Quick Troubleshooting Guide

You may elect to purchase the *Quick Troubleshooting Guide* that contains easy to follow flow charts that lead you through the debugging process. This guide was written for authorized service providers and contains steps that may be beyond the technical capabilities of some users. Improperly performing some processes identified in the guide may damage the computer and/or void the warranty. If you are unsure of your ability to perform the task, or if you are concerned about voiding the product warranty, contact your local authorized sales or service representative before undertaking the recommended corrective action.

To order the *Quick Troubleshooting Guide*, use the following part numbers:

- Part number 153837-001 for single copies
- Part number 153838-001 for multiples of five

Authorized dealers, resellers, and service providers should use the normal procedure for ordering spare parts. Customers in the U.S. and Canada should e-mail qtg@hp.com. In other countries, contact your local HP office for availability.